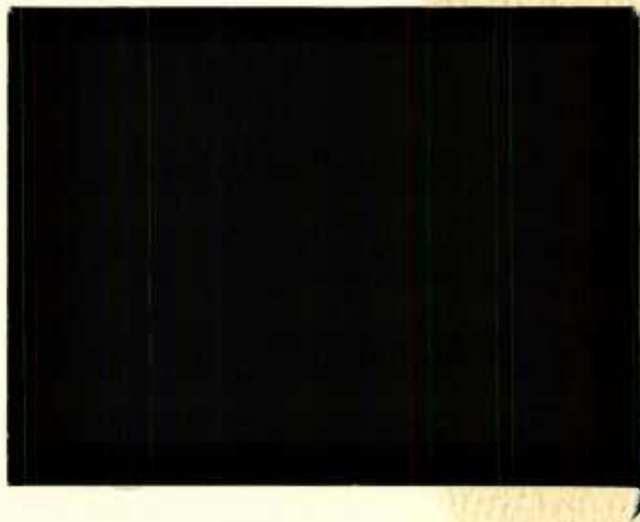


REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM												
1. REPORT NUMBER TR-ONR-DG-05	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER												
4. TITLE (and Subtitle) Social Information Processing and Group-Induced Response Shifts		5. TYPE OF REPORT & PERIOD COVERED Technical Report												
		6. PERFORMING ORG. REPORT NUMBER												
7. AUTHOR(s) Thomas S. Bateman, Ricky W. Griffin and David Rubenstein		8. CONTRACT OR GRANT NUMBER(s) N00014-83-C-0025												
9. PERFORMING ORGANIZATION NAME AND ADDRESS College of Business Administration Texas A&M University College Station, Texas 77843		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NR 170-950												
11. CONTROLLING OFFICE NAME AND ADDRESS (Code 442) Organizational Effectiveness Research Programs Office of Naval Research Arlington, VA 22217		12. REPORT DATE January 1984												
		13. NUMBER OF PAGES												
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified												
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE												
16. DISTRIBUTION STATEMENT (of this Report)  Approval for public release: distribution unlimited														
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)														
18. SUPPLEMENTARY NOTES														
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) <table border="0"> <tr> <td>Task Design</td> <td>Information</td> <td>Group Shifts</td> </tr> <tr> <td>Social Cues</td> <td>Information Sources</td> <td>Response Shifts</td> </tr> <tr> <td>Social Information</td> <td>Task Attributes</td> <td>Group-Induced</td> </tr> <tr> <td>Processing</td> <td></td> <td>Response Shifts</td> </tr> </table>			Task Design	Information	Group Shifts	Social Cues	Information Sources	Response Shifts	Social Information	Task Attributes	Group-Induced	Processing		Response Shifts
Task Design	Information	Group Shifts												
Social Cues	Information Sources	Response Shifts												
Social Information	Task Attributes	Group-Induced												
Processing		Response Shifts												
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) <p>A repeated measures control group experiment, designed in the group polarization tradition, revealed significant shifts in responses to tasks after group discussion. A process incorporating converging perspectives on task design - whereby employees form initial reactions to tasks, process incoming social information, and adjust their perceptions accordingly - is suggested.</p>														

# Organizations As Information Processing Systems

LIBRARY  
RESEARCH REPORTS DIVISION  
NAVAL POSTGRADUATE SCHOOL  
MONTEREY, CALIFORNIA 93943

Office of Naval Research  
Technical Report Series



Department of Management  
Texas A&M University

Richard Daft  
and  
Ricky Griffin  
Principal Investigators

Social Information Processing And  
Group-Induced Response Shifts

Thomas S. Bateman  
Ricky W. Griffin  
David Rubenstein

TR-ONR-DG-05

January 1984

Office of Naval Research  
N00014-83-C-0025  
NR 170-950

ORGANIZATIONS AS INFORMATION PROCESSING SYSTEMS

Richard L. Daft and Ricky W. Griffin  
Co-Principal Investigators

Department of Management  
College of Business Administration  
Texas A&M University  
College Station, TX 77843

- TR-ONR-DG-01 Joe Thomas and Ricky W. Griffin.  
The Social Information Processing Model of Task Design:  
A Review of the Literature. February 1983.
- TR-ONR-DG-02 Richard L. Daft and Robert M. Lengel.  
Information Richness: A New Approach to Managerial Behavior  
and Organization Design. May 1983.
- TR-ONR-DG-03 Ricky W. Griffin, Thomas S. Bateman, and James Skivington.  
Social Cues as Information Sources: Extensions and Refinements.  
September 1983.
- TR-ONR-DG-04 Richard L. Daft and Karl E. Weick.  
Toward a Model of Organizations As Interpretation Systems.  
September 1983.
- TR-ONR-DG-05 Thomas S. Bateman, Ricky W. Griffin, and David Rubenstein.  
Social Information Processing and Group-Induced Response  
Shifts. January 1984.

## Social Information Processing and Group-Induced Response Shifts

Extensive research has explored the effects of task design on the perceptual, affective, and behavioral responses of employees (cf., Griffin, 1982). In the past decade, task design research has been dominated by the job characteristics model (Hackman & Lawler 1971; Hackman & Oldham, 1976). However, mixed research results have led to several critical statements about their framework and given rise to a number of alternative perspectives (cf., Blau & Katerberg, 1982; Roberts & Glick, 1982).

Perhaps the most influential alternative framework of the last several years has been the social information processing (SIP) model proposed by Salancik and Pfeffer (1978). According to this approach, individuals' perceptions of and responses to their jobs are caused not only by their evaluations of their tasks but by other information, such as that provided by the social context. In fact, Salancik and Pfeffer argue that social information is an even more powerful determinant of task perceptions, attitudes, and behaviors than objective task characteristics. More specifically, an employee's social environment provides cues regarding what dimensions should be used to describe the work environment, how these pertinent dimensions should be weighed, how others evaluate the work environment on each dimension, and possibly a direct positive or negative evaluation of the work setting (Pfeffer, 1981).

Several published laboratory studies have independently varied objective task characteristics and social cues about the task (O'Connor & Barrett, 1980; O'Reilly & Caldwell, 1979; Weiss & Shaw, 1979; White and Mitchell, 1979). Results have consistently supported the influence of social information; effects on task perceptions or affective reactions have been just as pronounced for social cues as for objective task manipulations. The SIP approach has thus been solidly established as a valid perspective on task design and employee

responses, just as the task characteristics model was in the early 1970's.

Most recently, however, the stream of SIP theorizing and research has itself become the focus of critical reviews. Two review articles (Blau & Katerberg, 1982; Thomas & Griffin, 1983) have highlighted a number of substantive deficiencies in the extant literature. Furthermore, investigators have attempted to design more realistic laboratory experiments in response to perceived methodological shortcomings in the earlier studies such as potentially powerful demand characteristics (Blau, 1983; Griffin, Bateman, and Skivington, 1983). In contrast to the earlier studies, predominantly null results were obtained.

Both Blau (1983) and Griffin, et al. (1983) used two cues from each confederate social information source, communicated to the subject while (s)he was working on the task. In each study, this weaker but more realistic manipulation was used explicitly to lessen the demand characteristics that may have been present in earlier studies, which contain manipulations ranging from numerous and/or very frequent unanimous cues (O'Connor & Barrett, 1980; Weiss & Shaw, 1979; White & Mitchell, 1979) to the presentation of written evaluations of the experimental task to subjects after they had completed the task and immediately before they were administered the post-experimental questionnaire (O'Reilly & Caldwell, 1979).

Blau's (1983) social cue manipulations ranged from positive to neutral, as opposed to the positive to negative range present in all other studies except Weiss and Shaw (1979). Strongly significant manipulation checks indicated that his null results occurred despite subject's awareness of the espoused attitudes of the confederate coworkers. Griffin, et al. (1983) also attempted to inject more realism into their SIP study by not only reducing demand characteristics but also by simultaneously manipulating social cues from a supervisor and a coworker. As such, previously cited (Blau and Katerberg, 1982); Thomas and Griffin, 1983) shortcomings in the laboratory research--the testing of only



unanimous cues, the sole use of coworkers rather than leaders as a source of social information, and a reliance on single rather than multiple cue sources-- could be addressed through the creation of mixed cues as well as unanimous cues emanating from two important sources. These combinations, in conjunction with the less frequent, more realistic delivery of cues, were presumably more representative of the work context to which SIP laboratory studies aspire to generalize.

As with Blau's (1983) study, strongly significant manipulation checks supported the null results. Two simpler follow-up studies, designed and conducted to test the effect of cue frequency, also showed few significant results. Griffin, et. al. (1983) concluded with a discussion of the utility of attending to potentially valid null findings, a tabular summary presentation of the extant SIP laboratory studies, and the observation that the primary effects of social cues are less on task perceptions than on affective reactions and occur only when cues are unanimous, salient, and presented in very high frequency and/or number. These conditions are not reflective of most work settings. Hence, either the validity of the SIP framework must be severely questioned, or more convincing demonstrations of SIP effects on responses to work environments must be made via methods that are more realistic and spontaneous than the artificial creation of extremely unnatural communications.

One potentially fruitful avenue toward demonstrating a more natural unfolding of a SIP effect on task responses comes from a long-standing experimental tradition in social psychology. Discussion among members of a task group has been repeatedly shown to induce changes in attitudes, decisions, and other behaviors (cf., Lamm & Myers, 1978). That group interaction results in shifts in peoples' responses appears to be a phenomenon that is reliably replicated in the laboratory as well as representative of many real-world occurrences.

Research into group-induced response shifts was born with the discovery

of the "risky shift," that is, the tendency of groups to reach riskier decisions than the average of the initial individual decisions (Stoner, 1961). Subsequent research uncovered cautious shifts when initial individual tendencies are cautious, and a more general label for the shift, group polarization (Moscovici & Zavalloni, 1969), is now used. As reviewed by Myers and Lamm (1976; Lamm & Myers, 1978), the group polarization effect has been demonstrated across a variety of diverse tasks assessing many dependent variables, including not only decisions about courses of action (the original realm) but also judgments (Billig & Cochrane, 1976), evaluations of other persons (Myers & Lamm, 1976), including hypothetical supervisors (Stephenson & Brotherton, 1975), and numerous attitudes (e.g., Doise, 1969; Moscovici & Zavalloni, 1969). One earlier article (Cummings and Chertkoff, 1971) proposed management implications of the risky shift in organizations.

Typically, group shifts represent an enhancement of the initial prevailing individual tendency. Occasionally, however, a polarization of the initially dominant tendency is not found. Shifts in the opposite direction, or a lack of shift, (e.g., Cvetkovich & Baumgardner, 1973; Myers & Bach, 1974 ) are explained by the existence and influence of some external norm held by a reference group.

Regardless, though, of the direction of the group shift, the most strongly and consistently supported explanation is one of informational influence (Lamm & Myers, 1978). Arguments that emerge during discussion may not have been initially salient to individuals, and thus contribute to shifts in their post-discussion questionnaire responses.

Given the conceptual overlap between the prevalent theoretical explanation for the oft-replicated group shift and Salancik and Pfeffer's (1978) SIP approach to task design, it seems likely that a merging of these two lines of research has utility for demonstrating social influence effects on employee



responses to their tasks. The present study, in a departure from the general design of experiments reported in the SIP (management) literature, uses the traditional repeated measures design of the group polarization studies in the social psychological literature. This design involves a pretreatment measure, when subjects have no knowledge of the experimental treatment; the treatment, consisting of a group discussion; and a posttreatment administration of the same questionnaire. The posttreatment questionnaire is completed either by all individual subjects or, more commonly, by group consensus. Control groups do not engage in the group discussion treatment. Response shifts are measured in all conditions by changes from the pretest to the posttest.

One characteristic differentiating the present study from the traditional group polarization study is its use of posttest questionnaire administration to each subject, rather than a request for a single group (consensus) decision. Anderson and Graesser (1976) distinguish between the attitude-formation and consensus-formation stages of group decision-making, and suggest that research should focus on group products if decision schemes are being studied, and individual responses if attitude change is being studied. Furthermore, Lamm & Myers (1978) point out that the social and informational dynamics most convincingly invoked as explanations of group shifts are most germane to the attitude-formation stages, whereas other explanations (such as responsibility dynamics) appear most applicable to the consensus stage. Therefore, and consistent with the general thrust of the SIP framework, changes in individual perceptions and affect will be investigated rather than group responses.

Several advantages accrue from the use of this approach. Social cues emanate from genuine coworkers and are more natural and noncontrived than the artificial, planned cues of experimental confederates. Demand characteristics and other sources of artifacts should thus be minimized. In addition, the pretest/post-test design enables the study of changes in attitudes, thereby

providing a more externally valid representation of the dynamic responses characteristic of employees than static, post-test only designs. Finally, significant shifts after group discussion, coupled with nonsignificant changes in the nondiscussion control conditions, would provide a convincing experimental demonstration of SIP effects on individual responses to tasks.

## Method

### Design

The study was designed to include two independent variables: group-task type and post-task consideration of the task. There were two levels of each variable: problem-solving vs. clerical group tasks and solitary-introspective vs. group-discussion post-task consideration of the task. Hence, four experimental cells were created. The study thus used a basic 2x2 design. However, for reasons to be explained later, results were analyzed with an alternative approach to analysis of variance.

Dependent variables of interest were individual perceptions of and attitudes toward the task. These measures were collected at two points during the course of the experimental session: immediately after the task and again following the post-task consideration manipulation.

### Subjects

Subjects were 110 undergraduates, 61 males and 49 females, enrolled in a junior-level management course at Texas A&M University. Participants received partial course credit for taking part in the experiment.

Subjects participated in mixed-sex groups with a mean size of 4.8 persons. Each group was randomly assigned to one of the four cells in the experimental design.

All sessions were conducted by the same male experimenter.

### Manipulations

Group-Task Type. Groups worked at tasks for forty minutes.

In the problem-solving task condition, participants were informed upon arrival that they would work on a group problem solving task. Group members were seated around a table and received identical booklets of task problems. Problems had been selected from "Puzzles for Pleasure"-type books and published Mensa tests. The following problems are representative:

A man moors his boat in a harbor at high tide. A ladder is fastened to the boat, with three rungs showing. The rungs are 12 inches apart. At low tide the water level sinks 20 feet. How many rungs of the ladder are now showing.

Arrange the digits, from 1 to 9, in a square, so that every row, column, and diagonal totals the same amount.

The two volumes of Gibbons' "Decline and Fall of the Roman Empire" stand side by side in order on a bookshelf. A bookworm commences at Page 1 of Volume I and bores his way in a straight line to last page of Volume II. If each cover is  $\frac{1}{8}$  of an inch thick, and each book without the covers is 2 inches thick, how far does the bookworm travel?

The experimenter emphasized that, while the problems were not all business-oriented per se, the task was useful in developing the team problem-solving skills exhibited by successful practicing managers. The nature of the problems varied: some were conceptual, some mathematical; some were easy, some difficult; some were straightforward, some tricky. Groups were free to devise their own problem solving strategies, e.g., division of labor, unity of effort, or some hybrid; further, since more problems were provided than could be addressed in the forty-minute time limit, groups were free to select which problems they would attempt to solve. The experimenter indicated that he would be available should the group wish to learn if a solution it had reached was right or wrong; if the group sought feedback on any particular problem, it was not free to alter that answer subsequently. The group-nature of the task was emphasized;

groups were instructed to reach a consensus solution for each problem and urged to discuss both insights and stumbling blocks as they arose.

In the clerical task condition, arriving participants were informed that they would work in groups on a "Price Graphing" task. The task was similar to that developed by White and Mitchell (1979) and used later by Griffin, et al. (1983). Group members received similar booklets consisting of 12 pages of New York Stock Exchange quotations. Participants were told that each page represented a random day in twelve different months of a recent calendar year. Market activities of the same approximately-800 stocks appeared on each page; price quotations for each stock differed from page to page throughout each booklet.

Group members were seated around a table. Each received a sheet of graph paper and was instructed to graph the prices of designated stocks throughout the "year", pass the graph to the left (and receive a graph from the right), graph the prices of the next set of designated stocks, and on. After each round the process would begin again; on some rounds, subjects were instructed to pass graphs to the right rather than to the left.

The instructions provided no rationale for the task. Though stocks differed from turn-to-turn, the graphing process itself was invariable. Stocks to be graphed were designated by the experimenter. Except to designate stocks and to direct the passing of the graphs, the experimenter made no comment about task performance. Group members worked on graph sheets sequentially--each member contributed only a fractional share of each completed sheet of graph paper. While conversational interaction was not prohibited, the sequential nature of the task posed limitations.

After the forty minute time limit elapsed, group members for both task correlations were separated and sequestered to individually complete the task perceptions and evaluation measures.

Post-Task Consideration. Eight minutes were allotted for post task consideration. In the group discussion condition, individuals re-assembled as a group and received these general instructions:

Like questions on a test, the questionnaires you just filled out may have limitations. They may not capture what you know; or, you may not have a quick answer ready; or, you may simply need some time to develop and express your knowledge.

They were then asked to engage in group discussion about the group task (problem solving or price graphing). Every member was urged to participate in discussion. The experimenter remained with the group as a passive observer to encourage discussion of the task in circumstances when conversation wandered from the topic for more than a minute.

In the solitary-introspection condition, participants remained isolated in separate rooms. Individuals received the same general instructions issued in the group-discussion condition. Each subject was then asked to "think about" the group task (problem-solving or price graphing) alone in the room. The experimenter urged each subject not to let thoughts stray far from the topic.

After the passage of the eight minutes allotted for post-task consideration, participants were sequestered individually (in the group discussion condition) or remained sequestered individually (in the solitary-introspection condition) to complete the same task perception measures again. Participants were instructed to let their answers be "guided by the thoughts you have just developed" in the consideration condition. Participants then re-convened as a group for debriefing.

#### Measures

Measures of individual perceptions of the group task were administered at two points during the experimental session, as described above: immediately subsequent to the task and then following the post-task consideration condition.

Individuals' task perceptions were gauged by 25 seven-point semantic differential items developed by Scott (1967). Each dimension was anchored by contrasting adjective pairs (e.g., the task was "extremely pleasant" to "extremely unpleasant"; "extremely varied" to "extremely routine").

The rationale for not using a standard task attributes measure such as the JDS (Hackman & Oldham, 1975) or JCI (Sims, Szilagyi, & Keller, 1976) stems from the basic assumptions of the SIP viewpoint. As noted earlier, these assumptions suggest that the definition, weighting, and evaluation of relevant task dimensions varies across settings. Hence, rather than impose an a priori framework for assessing tasks, it seemed more appropriate to use a general assessment scheme which could then be translated into specific and relevant task properties.

### Results

Factor analysis on the semantic differential scale completed at  $t_1$  revealed an identifiable and useful factor structure. Four factors with eigenvalues greater than 1.0 emerged. The varimax rotated factor matrix is presented in Table 1, including the items with factor loadings of .40 or greater. Sixteen of the original 25 items met this criterion, and were retained for further analysis.

The four factors were labeled, respectively, job challenge, meaningfulness, predictability, and affect. Thus, one factor similar to a generalized satisfaction measure (affect) and three factors more indicative of perceptions of specific task dimensions were revealed. Although the original set of items was chosen and administered by the experimenters, the identification of emergent dimensions via factor analysis helped to provide four dependent variables that were psychologically meaningful and salient to subjects.

Since the four factors were to be used as dependent variables, their



reliabilities were assessed next. Job challenge (Factor I) had internal consistency reliabilities of  $\alpha = .89$  on the pretest ( $t_1$ ) and  $\alpha = .90$  on the posttest ( $t_2$ ), with a test-retest reliability of  $r = .94$ . Meaningfulness (Factor II) showed  $\alpha = .84$  at  $t_1$  and  $\alpha = .87$  at  $t_2$ , and a test-retest reliability of  $r = .76$ . Reliabilities of the predictability scale (Factor III) were  $\alpha = .69$  at  $t_1$ ,  $\alpha = .75$  at  $t_2$ , and  $r = .79$  from  $t_1$  to  $t_2$ . Finally, affect (Factor IV) showed  $\alpha = .74$  at  $t_1$ ,  $\alpha = .70$  at  $t_2$ , and a test-retest reliability of  $r = .73$ . As such, the measures generally had acceptable levels of internal consistency as well as stability.

The primary analytical tests for response shifts in the four experimental conditions were conducted via paired t-tests for differences in subjects'  $t_1$  and  $t_2$  scores within each condition. Although the experimental design is suggestive of an analysis of variance or covariance analytical scheme, the goals of the study dictated correlated t-tests on response changes. In essence, the data of interest lie within cells rather than between conditions. Differences between response shifts in the problem-solving vs. clerical tasks were not at issue, nor was it of central importance to determine whether group discussion conditions in general lead to more response changes than no discussion conditions. Rather, a group shift/social information processing effect would be demonstrated if subjects in the discussion conditions exhibited changes from  $t_1$  to  $t_2$ , whereas the no discussion conditions elicited no change. Furthermore, such a pattern, manifested across both the problem-solving and clerical tasks, would suggest a degree of generalizability of the phenomenon across tasks.

Table 2 shows the mean pre-test and post-test scores, and correlated t-tests, in all experimental conditions. With the clerical task, significant response shifts occurred on one of the four dependent variables in the no-discussion condition and on two of four variables in the group discussion condition. With the problem-solving task, group discussion elicited significant shifts in

three variables, versus no shifts in the no discussion condition. All told, response shifts occurred on one of eight dependent variables when there was no group discussion, and on five of eight variables when subjects did discuss their tasks.

#### Discussion

The pattern of results indicates effects of social information, as exchanged via group discussion, on perceptual and attitudinal reactions to tasks. Designed in response to recent criticisms of previous methodology in SIP laboratory studies, this study drew from the basic method of the risky shift/group polarization tradition in social psychology. In so doing, it not only demonstrated significant effects with an alternative approach to the typical SIP study design of recent years, but also offered several methodological advantages.

First, social cues emanated from naturally occurring group discussion among subjects rather than artificial, unidirectional communication from an experimental confederate. Although the opportunity and stimulus for discussion was provided experimentally, the casual and natural interactive exchange of social information about the task was probably less contrived and less contaminated by demand characteristics than other methods of communicating prepared cues. Additionally, any demand characteristics that may have been created by the provision of time to consider the task and the subsequent (second) questionnaire administration would also have been present for subjects in the control groups. For these subjects, reflection time as opposed to discussion time was provided, and post-test questionnaires were likewise administered. Without group discussion, though, response shifts were generally not in evidence.

Second, the use of a pretest and a posttest provided the first reported measure of perceptual changes as a function of exposure to social information in a laboratory task design context. This reflects an employee's development

of task perceptions, exposure to new information in the form of social cues, and subsequent (potential) response change. Such a process undoubtedly is more representative of most person/task/social system dynamics than static appraisals of passive individual reactions to social cues.

Third, the use of factor analysis to create the dependent variables in this study provided a step toward the identification of constructs having, perhaps, truer psychological meaning to the subjects than experimenter-created and -imposed constructs. Previous SIP studies, save one (O'Connor & Barrett, 1980), have been limited to the use of standard task attributes instruments. Of course, subjects in the present study were still constrained by the array of 25 items upon which the factor analysis was performed. Future research might concentrate on the identification of pertinent task characteristics through the collection of unconstrained responses to open-ended questions.

Finally, the use of two different types of tasks was a departure from the typical use of enriched and unenriched versions of the same basic task. Thus, as aspect of generalizability across tasks was explored. Statistical inference suggested some degree of generality, although the results were much more clear-cut in the problem-solving task than in the clerical task. It may have been that the problem-solving task generated more interaction during the task phase of the study, thereby creating a stronger group which generated a more powerful social influence in the discussion phase.

Two characteristics of the significant response shifts--their direction and their magnitude--require some scrutiny. Subjects started at the positive ends of the scales, and then shifts occurred in the negative directions. Subsequent responses were thus less positive (although not negative). This direction is opposite that predicted by a true group polarization effect, which dictates a shift in the same direction as the initial individual tendencies. Group shifts in the opposite direction are more uncommon, and have been explained

as a response to some external norm contrary to the initial tendencies. In this case, for example, students failing to appreciate the need for or utility of participation in a research project may provide a reference group with a negative normative posture. This possibility does not minimize the demonstration of a group shift, nor the potential generality of the effect to nonlaboratory settings. It does suggest, however, that the direction of the shift in responses to tasks may vary from setting to setting.

The magnitude of the effect, despite statistical significance, was not very substantial. This small but significant effect is consistent with Cartwright's (1971) early review of the risky shift phenomenon and with many other attitude change paradigms. It may be that the act of responding to the pretest was a binding choice that inhibited change. If this was the case, the effect would have been more powerful without the commitment of responses on a pretest, thereby more strongly suggesting a valid phenomenon of practical significance. On the other hand, perhaps statistically significant yet minor changes as a result of processing social information are quite representative of everyday processes.

It may be that a useful description of the process can be extracted from Tversky and Kahneman's (1974) notion of anchoring and adjustment. In making decisions, typically in the form of predictions or estimates, people start from some initial appraisal and adjust on the basis of incoming information. These adjustments are usually insufficient; that is, final estimates are still biased toward the initial starting point. Thus, different starting points are affected by (the same) new information, but final estimates are still different and biased toward initial values.

The same process may operate in the task design realm. Employees develop perceptual and affective reactions to their jobs, as predicted, for example, by the task characteristics model (Hackman & Lawler, 1971; Hackman & Oldham,

1976). Incoming social information is then processed, as predicted by the SIP model (Salancik & Pfeffer, 1978). Finally, the employee adjusts his reactions in a relatively minor yet significant way.

There are several sources of support for the existence of such a process. First, employees no doubt form reactions to tasks independent of social cues. Second, theoretical statements have identified numerous limiting conditions to the SIP effect (e.g., Blau & Katerberg, 1982). Third, studies suggestive of a powerful SIP effect are open to criticism and have been followed by recent null results (Blau, 1983; Griffin, et al, 1983). Fourth, a massive literature on group-induced response shifts (cf. Lamm & Myers, 1978), the results of the present study, and the adjustment and anchoring process identified in a different yet related arena (Tversky & Kahneman, 1974) all point to a small yet significant effect. Future work should pursue the potential validity of this complementary merger of perspectives on employee reactions to task design.



## References

- Anderson, N. & Graesser, C. An information integration analysis of attitude change in group discussion. Journal of Personality and Social Psychology, 1976, 34, 210-222.
- Billig, M., & Cochrane, R. Judgments of values and group polarization: Tests of the value-for-risk hypothesis. European Journal of Social Psychology, 1976, 6, 495-501.
- Blau, G. Source and receiver characteristics affecting social influences. Academy of Management Proceedings, 1983, 188-192.
- Blau, G. & Katerberg, R. Toward enhancing research with the social information processing approach to job design. Academy of Management Review, 1982, 7, 543-550.
- Cartwright, D. Risk taking by individuals and groups: An assessment of research employing choice dilemmas. Journal of Personality and Social Psychology, 1971, 20, 361-370.
- Cecil, E., Cummings, L., & Chertkoff, J. Group composition and choice shift: Implications for administration. Academy of Management Journal, 1973, 16, 412-422.
- Cvetkovich, G., & Baumgardner, S.R. Attitude polarization: The relative influence of discussion group structure and reference group norms. Journal of Personality and Social Psychology, 1973, 26, 159-165.
- Doise, W. Intergroup relations and polarization of individual and collective judgments. Journal of Personality and Social Psychology, 1969, 12, 136-143.
- Griffin, R. Task design: An integrative approach. Glenview, Illinois; Scott, Foresman, 1982.
- Griffin, R., Bateman, T., & Skivington, J. Social cues as information sources: Extensions and refinements. Paper presented at the Academy of Management Conference, Dallas, Texas, 1983.
- Hackman, J.R. & Lawler, E. Employee reactions to job characteristics. Journal of Applied Psychology, 1971, 55, 259-286.
- Hackman, J.R., and Oldham, G. Motivation through the design of work: Test of a theory. Organizational Behavior and Human Performance, 1976, 16, 250-279.
- Lamm, H., and Myers, D. Group-induced polarization of attitudes and behavior. In L. Berkowitz (Ed.), Advances in experimental social psychology, 1978, 11, 145-195.
- Moscovici, S., & Zavalloni, M. The group as a polarizer of attitudes. Journal of Personality and Social Psychology, 1969, 12, 125-135.
- Myers, D., and Bach, P. Discussion effects on militarism-pacifism: A test of the group polarization hypothesis. Journal of Personality and Social Psychology, 1974, 30, 741-747.



- Myers, D., and Lamm, H. The group polarization phenomenon. Psychological Bulletin, 1976, 83, 602-627.
- O'Connor, E.J. & Barrett, G.V. Informational cues and individual differences as determinants of subjective perceptions of task enrichment. Academy of Management Journal, 1980, 23, 697-716.
- O'Reilly, C.A. & Caldwell, D.F. Information influence as a determinant of perceived task characteristics and job satisfaction. Journal of Applied Psychology, 1979, 64, 157-165.
- Pfeffer, J. Management as symbolic action: The creation and maintenance of organizational paradigms. In L.L. Cummings & B.M. Staw, (Eds.), Research in Organizational Behavior, (Vol. 3), Greenwich, Conn.: JAI Press, 1981 1-52.
- Roberts, J., & Glick, W. The job characteristics approach to task design: A critical review. Journal of Applied Psychology, 1981, 66, 193-217.
- Salancik, G. & Pfeffer, J. A social information processing approach to job attitudes and task design. Administrative Science Quarterly, 1978, 23, 224-53.
- Scott, W.E., Jr. The development of semantic differential scales as measures of "morale." Personnel Psychology, 1967, 20, 179-198.
- Stephenson, G., & Brotherton, C. Social progression and polarization: A study of discussion and negotiation in groups of mining supervisors. British Journal of Social and Clinical Psychology, 1975, 14, 241-252.
- Stoner, J.A. A comparison of individual and group decisions involving risk. Unpublished master's thesis. School of Industrial Management, Massachusetts Institute of Technology, 1961.
- Thomas, J., & Griffin, R.W. The social information processing model of task design: A review of the literature. Academy of Management Review, 1983, 8 (in press).
- Weiss, J.M. & Shaw, J.B. Social influences on judgments about tasks. Organizational Behavior and Human Performance, 1979, 24, 126-140.
- White, S.E. & Mitchell, T.R. Job enrichment versus social cues: A comparison and competitive test. Journal of Applied Psychology, 1979, 64, 1-9.

Table 1. Semantic Differential Item Factor Loadings <sup>1</sup>

Item	Factor			
	I	II	III	IV
3. complex-simple	.71	-.06	-.56	.34
7. difficult-easy	.65	-.06	-.51	.34
19. varied	.77	.09	-.12	.17
23. broad	.75	.26	-.07	.17
24. exciting	.47	.20	-.21	.39
11. valuable	.08	.74	-.03	.15
17. meaningful	.15	.69	.06	.19
21. important	.09	.90	.09	.07
22. positive	.13	.53	.15	.45
10. explicit-vague	-.14	.16	.65	.05
12. clear	-.09	-.03	.75	.09
18. secure	-.14	.05	.46	.01
4. pleasant-unpleasant	.21	.14	.06	.54
6. bright-dark	.21	-.03	-.16	.55
9. attractive-unattractive	.12	.16	.05	.56
14. wholesome	.09	.17	.11	.56

1 Only items with loadings greater than .40 were retained.

Table 2. Initial and Final Scores and Paired t-tests for Changes in the Dependent Variables in the Four Experimental Conditions

Clerical Task

Experimental Condition	N	Dependent Variable	Initial Score	Final Score	t
No Discussion	28	1. Challenge	25.8	27.4	-2.98**
		2. Meaningfulness	14.9	16.2	-1.80
		3. Predictability	8.3	9.2	-2.01
		4. Affect	18.9	19.7	-1.46
Group Discussion	28	1. Challenge	27.6	28.4	-1.24
		2. Meaningfulness	15.1	16.5	-2.98**
		3. Predictability	7.8	8.3	-1.10
		4. Affect	18.2	19.2	-2.58*

Problem-Solving Task

Experimental Condition	N	Dependent Variable	Initial Score	Final Score	t
No Discussion	26	1. Challenge	14.5	14.6	-0.09
		2. Meaningfulness	13.7	13.1	1.22
		3. Predictability	11.0	10.8	0.96
		4. Affect	17.0	16.6	0.87
Group Discussion	28	1. Challenge	13.3	14.4	-3.13**
		2. Meaningfulness	14.7	14.5	0.45
		3. Predictability	10.8	11.6	-2.35*
		4. Affect	16.1	16.9	-2.82**

\*  $p < .05$ .

\*\*  $p < .01$ .

Appendix

Distribution List

P4-5/A1  
Sequential by Agency

452:KD:716:enj  
78u452-883  
24 June 1981

LIST 1  
MANDATORY

Defense Technical Information Center  
ATTN: DTIC DDA-2  
Selection and Preliminary Cataloging Section  
Cameron Station  
Alexandria, VA 22314

(12 copies)

Library of Congress  
Science and Technology Division  
Washington, DC 20540

Office of Naval Research  
Code 442-OE  
800 N. Quincy Street  
Arlington, VA 22217

(3 copies)

Naval Research Laboratory  
Code 2627  
Washington, DC 20375

(6 copies)

Office of Naval Research  
Director, Technology Programs  
Code 200  
800 N. Quincy Street  
Arlington, VA 22217

LIST 4  
NAVMAT & NPRDC

NAVMAT

Program Administrator for Manpower,  
Personnel, and Training  
MAT 0722  
800 N. Quincy Street  
Arlington, VA 22217

Naval Material Command  
Management Training Center  
NAVMAT 09M32  
Jefferson Plaza, Bldg #2, Rm 150  
1421 Jefferson Davis Highway  
Arlington, VA 20360

Naval Material Command  
NAVMAT-OOK  
Washington, DC 20360

Naval Material Command  
NAVMAT-OOKB  
Washington, DC 20360

Naval Material Command  
(MAT-03)  
Crystal Plaza #5  
Room 236  
2211 Jefferson Davis Highway  
Arlington, VA 20360

NPRDC

Commanding Officer  
Naval Personnel R&D Center  
San Diego, CA 92152

(5 Copies)

Navy Personnel R&D Center  
Washington Liaison Office  
Building 200, 2N  
Washington Navy Yard  
Washington, DC 20374



LIST 9

USMC

Headquarters, U.S. Marine Corps  
Code MPI-20  
Washington, DC 20380

Headquarters, U.S. Marine Corps  
ATTN: Dr. A. L. Slafkosky,  
Code RD-1  
Washington, DC 20380

Education Advisor  
Education Center (E031)  
MCDEC  
Quantico, VA 22134

Commanding Officer  
Education Center (E031)  
MCDEC  
Quantico, VA 22134

Commanding Officer  
U.S. Marine Corps  
Command and Staff College  
Quantico, VA 22134

P4-5/A24  
Sequential by Agency

452:KD:716:enj  
78u452-883  
24 June 1981

LIST 11 CONT'D

OTHER FEDERAL GOVERNMENT

Social and Developmental Psychology  
Program  
National Science Foundation  
Washington, DC 20550

P4-5/A27  
Sequential by State/City

452:KD:716:enj  
78u452-883  
24 June 1981

LIST 13  
AIR FORCE

Air University Library/LSE 76-443  
Maxwell AFB, AL 36112

COL John W. Williams, Jr.  
Head, Department of Behavioral  
Science and Leadership  
U.S. Air Force Academy, CO 80840

MAJ Robert Gregory  
USAFA/DFBL  
U.S. Air Force Academy, CO 80840

AFOSR/NL (Dr. Fregly)  
Building 410  
Bolling AFB  
Washington, DC 20332

LTCOL Don L. Presar  
Department of the Air Force  
AF/MPXHM  
Pentagon  
Washington, DC 20330

Technical Director  
AFHRL/MO(T)  
Brooks AFB  
San Antonio, TX 78235

AFMPC/MPCYPR  
Randolph AFB, TX 78150

LIST 15 (Continued)

Dr. J. Richard Hackman  
School of Organization  
and Management  
Box 1A, Yale University  
New Haven, CT 06520

Dr. Lawrence R. James  
School of Psychology  
Georgia Institute of  
Technology  
Atlanta, GA 30332

Dr. Allan Jones  
Naval Health Research Center  
San Diego, CA 92152

Dr. Frank J. Landy  
The Pennsylvania State University  
Department of Psychology  
417 Bruce V. Moore Building  
University Park, PA 16802

Dr. Bibb Latane  
The Ohio State University  
Department of Psychology  
404 B West 17th Street  
Columbus, OH 43210

Dr. Edward E. Lawler  
University of Southern California  
Graduate School of Business  
Administration  
Los Angeles, CA 90007

Dr. Fred Luthans  
Regents Professor of Management  
University of Nebraska - Lincoln  
Lincoln, NB 68588

## LIST 15 (Continued)

Dr. H. Wallace Sinaiko  
Program Director, Manpower Research  
and Advisory Services  
Smithsonian Institution  
801 N. Pitt Street, Suite 120  
Alexandria, VA 22314

Dr. Richard M. Steers  
Graduate School of Management  
University of Oregon  
Eugene, OR 97403

Dr. Philip G. Zimbardo  
Stanford University  
Department of Psychology  
Stanford, CA 94305

Dr. Gerald R. Stoffer  
Aerospace Psychologist  
LT, Medical Service Corp.  
Code N-712  
NAVTRAEQUIPCEN  
Orlando, FL 32813

2 copies  
→

Dr. Janet Barnes-Farrell  
Dept. of Psychological Sciences  
Purdue University  
West Lafayette, IN 47907

Dr. Siegfried Streufert  
The Pennsylvania State University  
Department of Behavioral Science  
Milton S. Hershey Medical Center  
Hershey, PA 17033

2 copies  
→

Dr. Richard Daft  
Dept. of Management  
Texas A&M University  
College Station, TX 77843

Dr. James R. Terborg  
University of Oregon  
West Campus  
Department of Management  
Eugene, OR 97403

Dr. Sara Kiesler  
Dept. of Social Science  
Carnegie-Mellon University  
Pittsburgh, PA 15213

Dr. Harry C. Triandis  
Department of Psychology  
University of Illinois  
Champaign, IL 61820

Dr. Howard M. Weiss  
Purdue University  
Department of Psychological  
Sciences  
West Lafayette, IN 47907